AMENDMENTS TO THE CLAIMS

1. (currently amended) An infrared imaging apparatus for carrying out shading correction of picture data obtained as a result of an image-taking process using a camera head comprising an optical system, a plurality of detector elements and a container for accommodating said detector elements, said infrared imaging apparatus comprising:

a first correction unit for creating corrected-sensitivity picture data by correction of shading components caused by said optical system to produce uniform scene components included in said picture data obtained as a result of an image-taking process of a uniform scene;

a storage unit for storing a housing response profile for correcting a housing-shading component caused by infrared rays radiated by said optical system and said container for each of said detector elements; and

a second correction unit for ~~creating corrected-housing-shading picture data by correction of housing-shading picture data by correction of housing-shading components~~ estimating housing-shading components contained in said corrected-sensitivity picture data based on said corrected-sensitivity picture data received from said first correction unit and said housing response profile for each of said detector elements received from said storage unit, and creating corrected-housing-shading picture data by correction of said housing-shading components,

wherein said housing response profile for each of said detector elements is a value based on a first differential data between a first and a second picture data for said detector element where:

said first picture data is picture data taken by setting a black-body-radiator at a first temperature placed in front of said camera head and setting said camera head at a second temperature; whereas

said second picture data is picture data taken by setting said black-body-radiator at said first temperature placed in front of said camera head and setting said camera head at a third temperature.

2.(currently amended) An infrared imaging apparatus according to claim 1 wherein ~~said second correction unit corrects a housing-shading component by executing the steps of~~:

~~assuming that~~ a product of a first constant found and a housing response profile for each of said detector elements is a housing component for each of said detector elements;

~~finding said first constant;~~ and wherein said second correction unit includes a unit for subtracting a product of a housing response profile for each of said detector elements and ~~said first~~ constant from corrected-sensitivity picture data for each of said detector elements.

3. (currently amended) An infrared imaging apparatus according to claim 1 ~~wherein said second correction unit:~~

~~assumes that~~ wherein, for each of said detector elements, said corrected-sensitivity picture data of any particular one of said detector elements is a sum of a housing-shading component and a second constant representing a scene component where said housing-shading component is a product of a first constant and said housing response profile for said particular detector element; and wherein said the second correction unit includes a unit for computing

~~computes~~ said first constant's value that minimizes a total obtained by summing the square of a difference of said sum from said corrected-sensitivity picture data related to the detector elements.

4.(original) An infrared imaging apparatus according to claim 3 wherein said housing response profile is data with no physical dimensions.

5.(currently amended) An infrared imaging apparatus according to claim 4 wherein said second correction unit ~~changes~~ is configured to change said first and second constants in accordance with an average value of pieces of corrected-sensitivity picture data for a plurality of said detector elements in a predetermined area.

6.(currently amended) An infrared imaging apparatus according to claim 1 wherein said housing response profile ~~for any particular one of said detector elements~~ is a ~~product of a third constant and~~ value based on a ratio of said first differential data to a second differential data between ~~first~~ third and fourth picture data ~~for said particular detector element and second picture data for said particular detector element~~ where:

said ~~first~~ third picture data is picture data taken by setting [[a]] said black-body-radiator placed in front of said camera head at ~~a predetermined~~ said second temperature and setting said camera head at [[a]] said first temperature; whereas

said ~~second~~ fourth picture data is picture data taken by setting said black-body-radiator at said ~~predetermined~~ third temperature in front of said camera head and setting said camera head at [[a]] said ~~second~~ first temperature.

7.(currently amended) An infrared imaging apparatus according to claim 1 wherein said first correction unit ~~corrects~~ is configured to correct shading components caused by said optical system in accordance with sensitivity-correction calibration data based on third picture data and fourth picture data where:

said third picture data is picture data taken by setting said camera head at a predetermined temperature and setting a black-body placed in front of said camera head at a third temperature; whereas

said fourth picture data is picture data taken by setting said camera head at said predetermined temperature and setting said black-body-radiator at a fourth temperature.

8.(original) An infrared imaging apparatus according to claim 2, further comprising:

a scanning unit for putting a view axis of said camera head in a scanning movement; and

a smoothing-process unit for creating smoothed picture data by carrying out integration and averaging processes on pieces of corrected-sensitivity picture data for detector elements of an infrared detector,

wherein said second correction unit computes said first constant on the basis of said smoothed picture data.

9.(original) An infrared imaging apparatus according to claim 1, further comprising:

a smoothing-process unit for creating smoothed picture data by carrying out integration and averaging processes on pieces of corrected-sensitivity picture data for detector elements of an infrared detector; and

a third correction unit for correcting corrected-sensitivity picture data of any particular one of said detector elements on the basis of a difference between said smoothed picture data created by carrying out said integration and averaging processes on pieces of corrected-sensitivity picture data for detector elements surrounding said particular detector element and an average value of said smoothed data.

10.(original) An infrared imaging apparatus according to claim 7 wherein said sensitivity-correction calibration data is a first average value and an offset-correction calibration data based on gain-correction calibration data representing a ratio of a second difference to a first difference and based on said third picture data for said detector elements where:

said first difference is a difference between said first average value of said third picture data of said detector elements and a second average value of said fourth picture data of said detector elements; whereas

said second difference is a difference between said third picture data of said detector elements and said fourth picture data of said detector elements.

11.(new) An infrared imaging apparatus according to claim 1, further comprising a housing response profile creating unit for creating said housing response profile.